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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,531	04/04/2002	Tae-Song Kim	P/ 2292-51	4150

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EXAMINER

FIORILLA, CHRISTOPHER A

ART UNIT PAPER NUMBER

1731

DATE MAILED: 07/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/030,531

Applicant(s)

KIM ET AL.

Examiner

Christopher A. Fiorilla

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

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1. This application does not contain an abstract of the disclosure as required by 37

CFR 1.72(b). An abstract on a separate sheet is required.

2. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1-5,8 and 9, the phrase "sol-like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "-like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

In claim 2, it is not understood what is meant by "separated...in a solvent".

In claim 6, the phrase "sintering temperature is 800 to 900°C in case of sintering" is redundant.

In claim 9, the semicolon at the end of the claim should be replaced by a period.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Danforth et al. (5,997,795) in view of Clough et al. (5,756,207).

Danforth et al. teaches the basic claimed process of manufacturing a ceramic body. The process disclosed by Danforth et al. includes the steps of:

- providing a vehicle comprising vehicle and solvent;
- dispersing ceramic powders into the vehicle;
- forming the paste into a film;
- removing binder from the film; applying sol to the film to infiltrate the film; and
- sintering the film.

Danforth et al. does not disclose that the paste is formed by screen printing. Clough et al. teaches screen printing and extrusion are equivalent methods of forming ceramic powders. It would have been obvious to one skilled in the art at the time of the invention to mold the paste of Danforth et al. by screen printing in view of the equivalence teaching of Clough et al.

Determination of the specific sintering temperature, product thickness would have been well within the realm of routine experimentation to one having ordinary skill in the art at the time of the invention. These parameters would have obviously been selected to optimize the process conditions and/or the properties of the final product.

6. Claims 1-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danforth et al. (5,997,795) in view of Clough et al. (5,756,207) as applied to claim 8 above, and further in view of either one of Radford et al. (5,457,598) and Butler et al. (5,137,634).

Radford et al. and Butler et al. teach spinning an article to remove excess coating material. It would have been obvious to one having ordinary skill in the art at the time of the invention to remove excess coating solution in Danforth et al. by spinning.

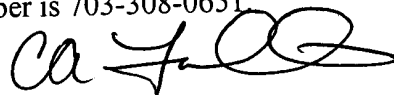
PZT is a known ceramic material with known physical properties. It would have been obvious to one skilled in the art at the time of the invention to use this type of material in view of the generic disclosure of Danforth et al.

It is known in the art to impregnate with multiple impregnations to optimize physical properties. It would have been obvious to one having ordinary skill in the art at the time of the invention to use multiple impregnations in the process of Danforth et al. to perfect the process.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher A. Fiorilla whose telephone number is 703-308-0674. The examiner can normally be reached on M-F, 6:30am-3:00pm, but works a flexible schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on 703-308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7718 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



Christopher A. Fiorilla
Primary Examiner
Art Unit 1731

caf
July 29, 2002